VARIABILIDAD Y TENDENCIAS EN EL INICIO DE LA TEMPORADA DE LLUVIAS EN EL VALLE DEL MANTARO

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Motivation and main objective

- Almost 80% of agriculture in the Mantaro Valley is directly dependent on rainfall. It is very important for this activity, the beginning, quantity, temporal and spatial distribution of rainfall.

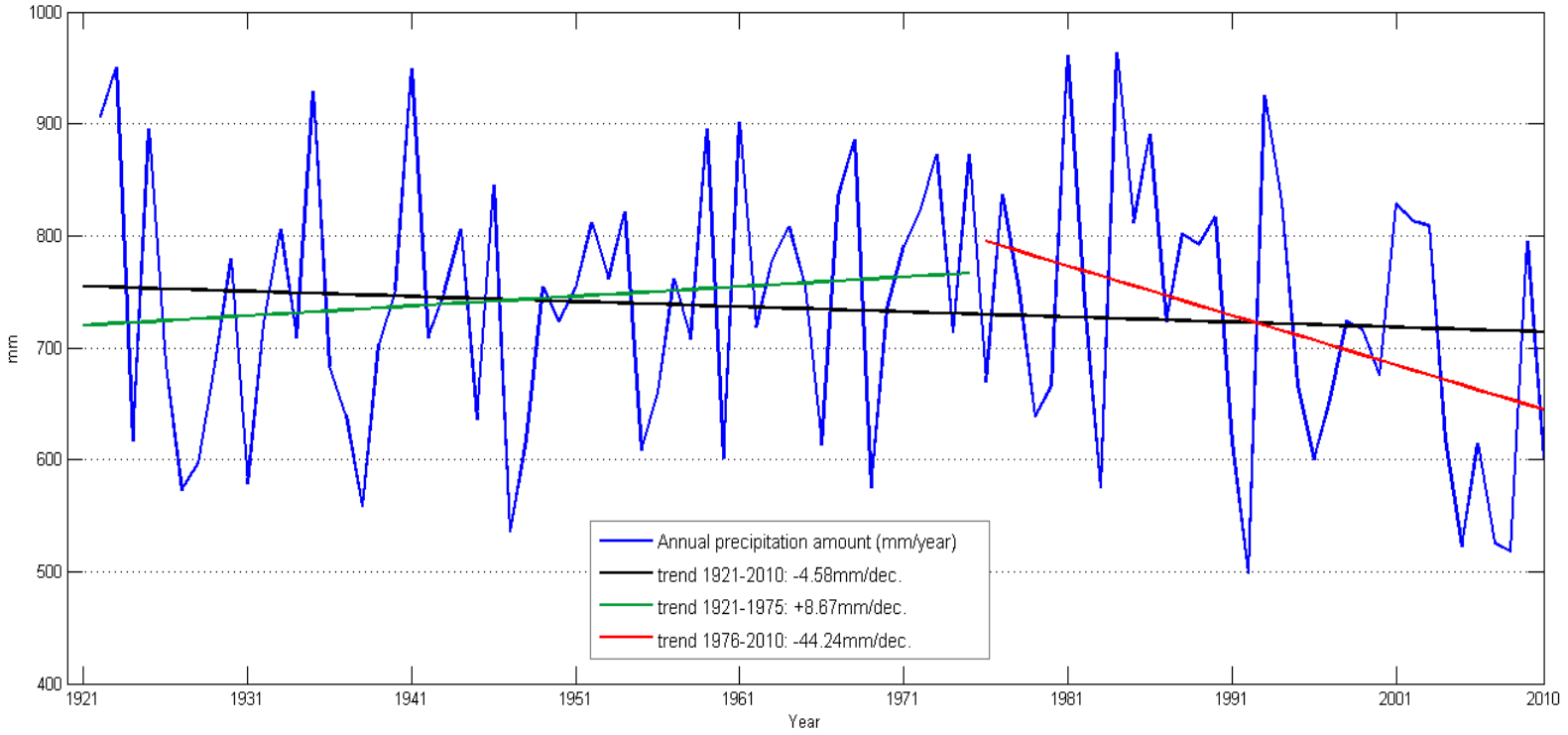
- The general perception of people in the Mantaro Valley, is that the beginning of rains are delaying for this reason the seeding is getting later.

- Identify the variability and tendencies in the beginning of the rainy season.

Data and methodology

- Daily precipitation at Huayao (3300 m.a.s.l.) from 1921 to 2010.
- Threshold for the definition the start of rainy season, was the 10th percentile of the precipitation accumulated from July to October.

Precipitation trend in Huayao (1921-2010

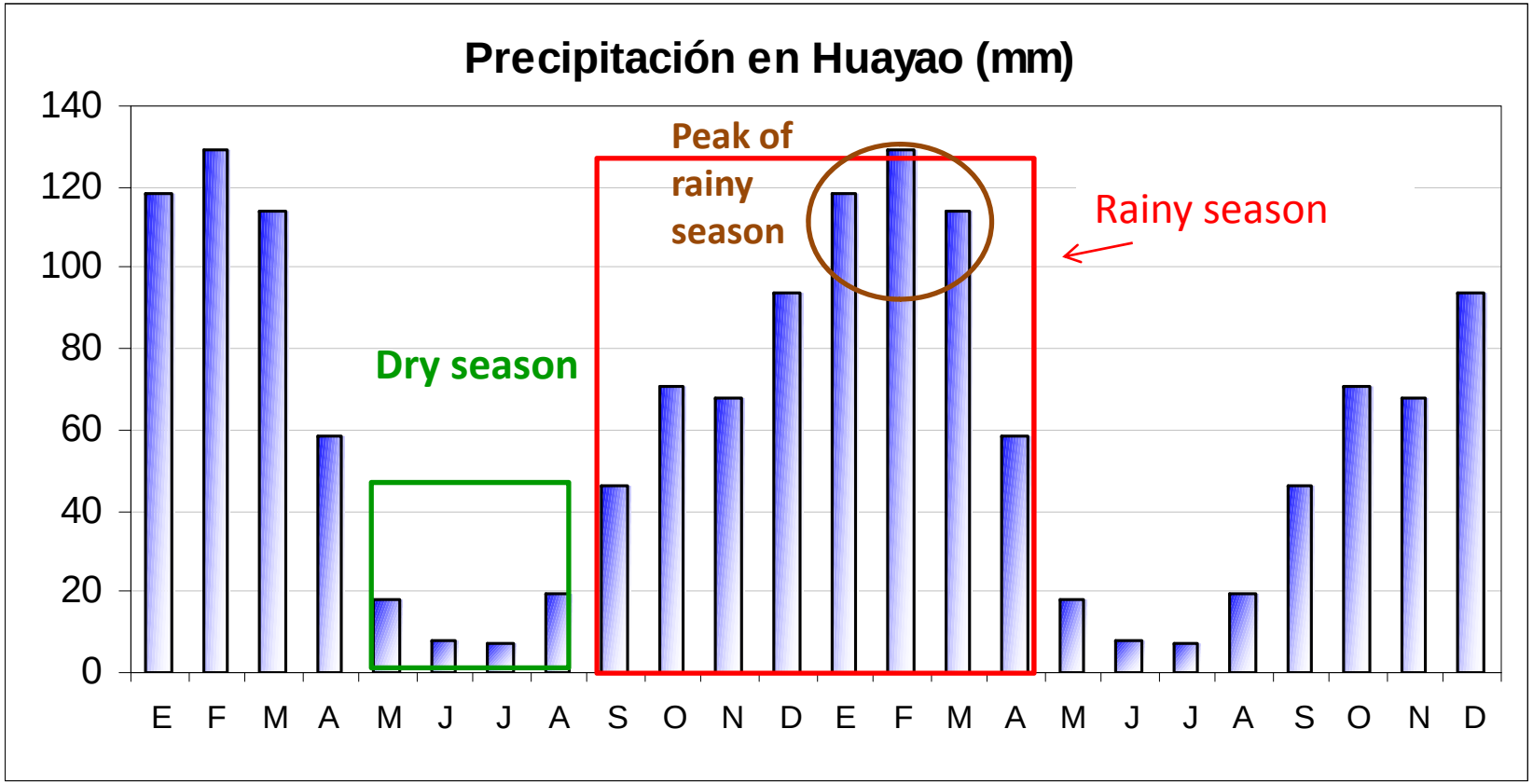


Time slice	Annual mm/década	Summer (JFM) mm/década	Spring (SON) mm/década
1921- 2010	-4,58	0,03	-2,81
1976- 2010	-46,45**	-23,22*	-17,44*
1975-2010	16,04	12,77*	0,78

Silva & Trasmonte, 2011

Signifi cance level: *** 99% ** 95% * 90%

Seasonal variability



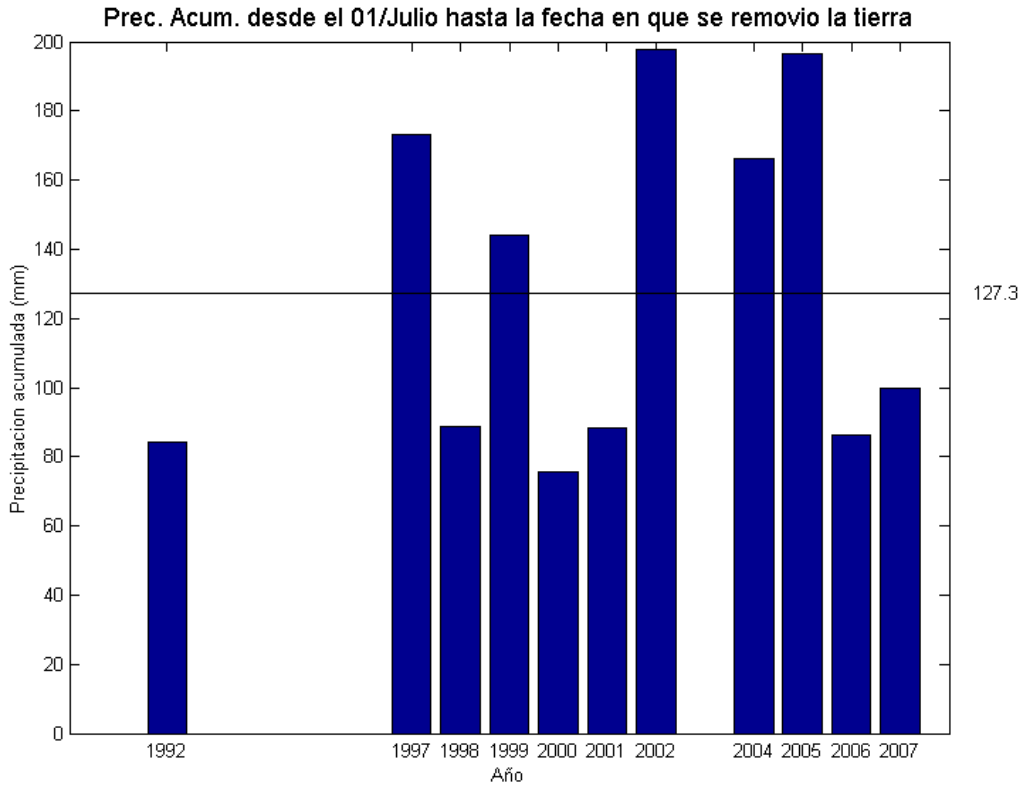
September-april: 86% of annual precipitation

January-March: 49% of annual precipitation

September-December: 25%

Definition of the threshold for the beginning of rainy season

The date of soil removal for sowing "tauri", which does not use irrigation, was used as reference date to accumulate the precipitation.



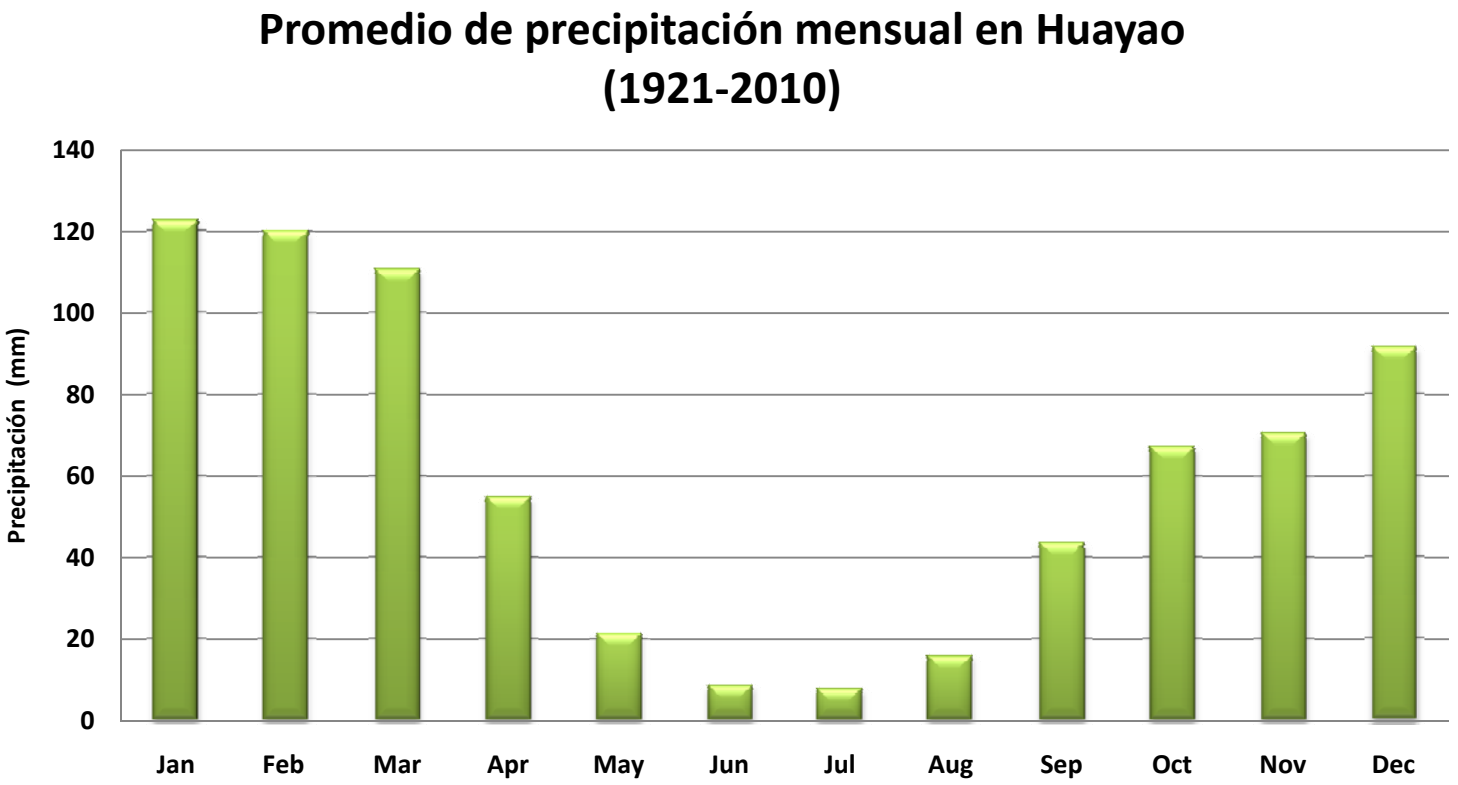
Día	Mes	Año
24	Octubre	1990
25	Octubre	1991
10	Noviembre	1992
21	Noviembre	1997
16	Octubre	1998
09	Noviembre	1999
23	Octubre	2000
22	Octubre	2001
04	Noviembre	2002
22	Noviembre	2004
18	Noviembre	2005
18	Octubre	2006
08	Noviembre	2007

Source: Carolina Girón (EAE Santa Ana, INIA-Huancayo)

Traditional planting date
October the 18th, the Feast of San Lucas (*)

*Timmi Tillmann, 1997. Las estrellas no mienten. Agricultura y ecología andina subjetiva en Jauja (Perú)

Definición de la fecha de inicio de lluvias



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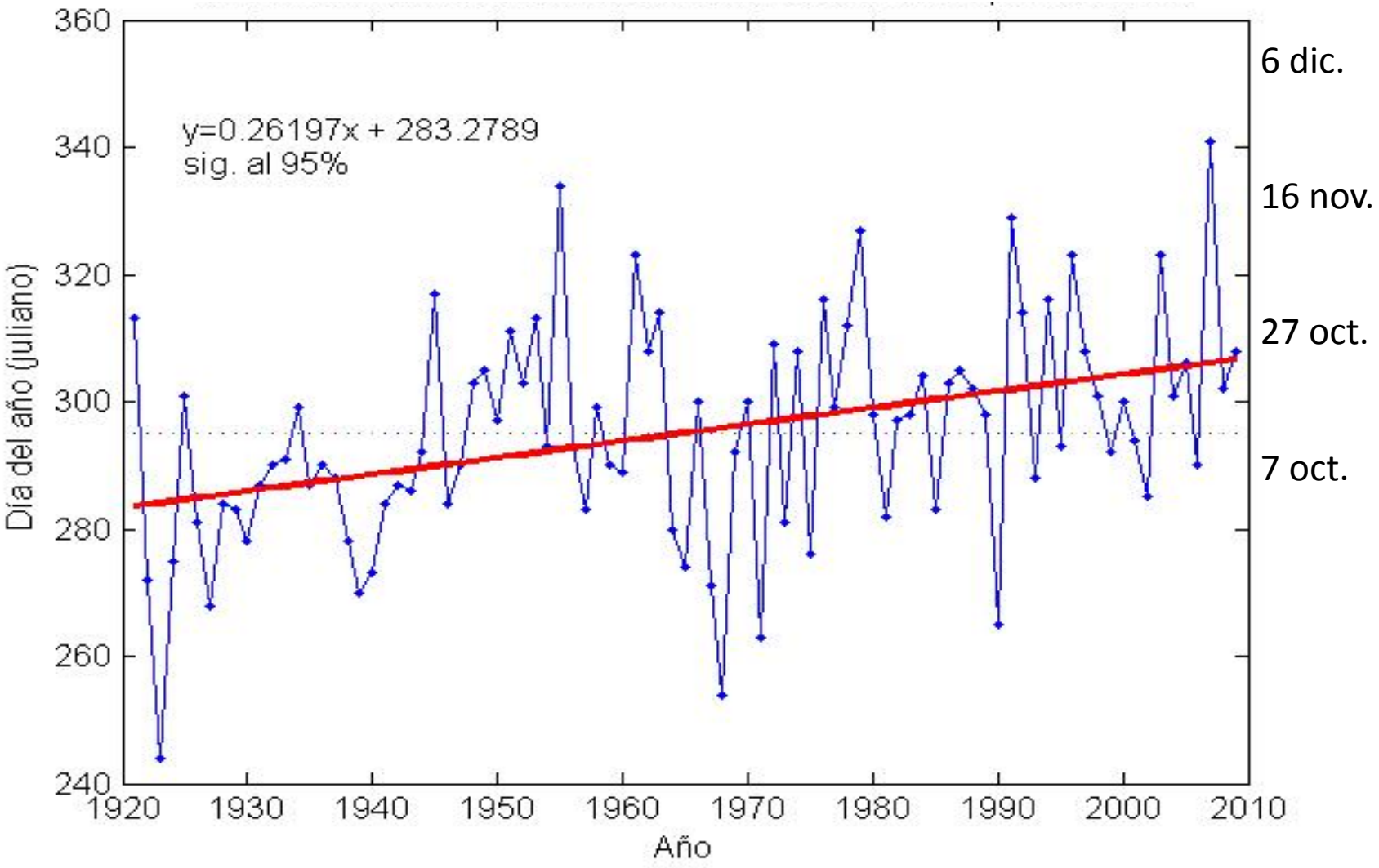
prom	202.8	132.6
P10	134.1	88.6
P25	164.4	99.5
P50	195.1	129.4
P75	239.0	154.2
P90	276.7	188.3

23.7	67.2	134.3	204.9

Variability in the day of 88.6mm accumulated precipitation in Huayao (1921-2010)



Variability in the day of 88.6mm accumulated precipitation in Huayao (1921-2010)

Time slice	Precip. Accumulated	Date
1921-2010	93.4	22 October
1921-1964	94.2	18 October
1965-2010	92.7	25 October
1990-2010	91.2	31 October

The standart desviation for all periods are 16-17 days

Summary

- There is high variability on the date of onset of the rains, on average 17 day.
- Before the early sixties, the 88.8 mm rainfall accumulated in average around Oct. 18, coinciding with the San Lucas fest.
- In the last two decades the average rainfall being initiated on October 31, representing a shift of about 12 days with respect to the sixties.